



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

## NOTICE OF ALLOWANCE AND FEE(S) DUE

05514 7590 04/09/2003

FITZPATRICK CELLA HARPER & SCINTO  
30 ROCKEFELLER PLAZA  
NEW YORK, NY 10112

EXAMINER

LEE, WILSON

ART UNIT

CLASS-SUBCLASS

2821

315-169300

DATE MAILED: 04/09/2003

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,016	07/20/2001	Hisao Tajima	35.C15582	9097

TITLE OF INVENTION: ELECTRON-EMITTING DEVICE AND IMAGE FORMING APPARATUS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1300	\$300	\$1600	07/09/2003

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

## HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status is changed, pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above and notify the United States Patent and Trademark Office of the change in status, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check the box below and enclose the PUBLICATION FEE and 1/2 the ISSUE FEE shown above.

☐ Applicant claims SMALL ENTITY status.  
See 37 CFR 1.27.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Box ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER:** Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

# **PART B - FEE(S) TRANSMITTAL**

**Complete and send this form, together with applicable fee(s), to: Mail Box ISSUE FEE**  
**Commissioner for Patents**  
**Washington, D.C. 20231**  
**Fax (703)746-4000**

**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 4 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

**CURRENT CORRESPONDENCE ADDRESS** (Note: Legibly mark-up with any corrections or use Block 1)

05514 7590 04/09/2003

**FITZPATRICK CELLA HARPER & SCINTO**  
**30 ROCKEFELLER PLAZA**  
**NEW YORK, NY 10112**

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

## **Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Box Issue Fee address above, or being facsimile transmitted to the USPTO, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,016	07/20/2001	Hisao Tajima	35.C15582	9097

**TITLE OF INVENTION: ELECTRON-EMITTING DEVICE AND IMAGE FORMING APPARATUS**

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1300	\$300	\$1600	07/09/2003

EXAMINER	ART UNIT	CLASS-SUBCLASS
LEE, WILSON	2821	315-169300

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) ☐ individual ☐ corporation or other private group entity ☐ government

4a. The following fee(s) are enclosed:

- ☐ Issue Fee
- ☐ Publication Fee
- ☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s):

- ☐ A check in the amount of the fee(s) is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Commissioner is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

Commissioner for Patents is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

(Authorized Signature)

(Date)

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMIT THIS FORM WITH FEE(S)



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,016	07/20/2001	Hisao Tajima	35.C15582	9097
05514	7590	04/09/2003	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			LEE, WILSON	
			ART UNIT	PAPER NUMBER
			2821	
DATE MAILED: 04/09/2003				

**Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)**  
(application filed on or after May 29, 2000)

The patent term adjustment to date is 11 days. If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the term adjustment will be 11 days.

If a continued prosecution application (CPA) was filed in the above-identified application, the filing date that determines patent term adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) system. (<http://pair.uspto.gov>)

Any questions regarding the patent term extension or adjustment determination should be directed to the Office of Patent Legal Administration at (703)305-1383.



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,016	07/20/2001	Hisao Tajima	35.C15582	9097
05514	7590	04/09/2003	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112 UNITED STATES			LEE, WILSON	
			ART UNIT	PAPER NUMBER
			2821	

DATE MAILED: 04/09/2003

## Notice of Fee Increase on January 1, 2003

If a reply to a "Notice of Allowance and Fee(s) Due" is filed in the Office on or after January 1, 2003, then the amount due will be higher than that set forth in the "Notice of Allowance and Fee(s) Due" since there will be an increase in fees effective on January 1, 2003. See Revision of Patent and Trademark Fees for Fiscal Year 2003; Final Rule, 67 Fed. Reg. 70847, 70849 (November 27, 2002).

The current fee schedule is accessible from: <http://www.uspto.gov/main/howtofees.htm>.

If the issue fee paid is the amount shown on the "Notice of Allowance and Fee(s) Due," but not the correct amount in view of the fee increase, a "Notice to Pay Balance of Issue Fee" will be mailed to applicant. In order to avoid processing delays associated with mailing of a "Notice to Pay Balance of Issue Fee," if the response to the Notice of Allowance and Fee(s) due form is to be filed on or after January 1, 2003 (or mailed with a certificate of mailing on or after January 1, 2003), the issue fee paid should be the fee that is required at the time the fee is paid. If the issue fee was previously paid, and the response to the "Notice of Allowance and Fee(s) Due" includes a request to apply a previously-paid issue fee to the issue fee now due, then the difference between the issue fee amount at the time the response is filed and the previously paid issue fee should be paid. See Manual of Patent Examining Procedure, Section 1308.01 (Eighth Edition, August 2001).

Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.

# Notice of Allowability

Application No.

09/909,016

Examiner

Wilson Lee

Applicant(s)

TAJIMA ET AL.

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 1/2/03.
2. ☒ The allowed claim(s) is/are 1-137.
3. ☒ The drawings filed on 20 July 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All b) ☐ Some\* c) ☐ None of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* Certified copies not received: \_\_\_\_\_.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**


7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No. \_\_\_\_\_.
  - (b) ☐ including changes required by the proposed drawing correction filed \_\_\_\_\_, which has been approved by the Examiner.
  - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the top margin (not the back) of each sheet. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

- |  |   |
|--|---|
| 1 <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                               | 2 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)          |
| 3 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                      | 4 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____.            |
| 5 <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449), Paper No. <u>7</u> . | 6 <input type="checkbox"/> Examiner's Amendment/Comment                             |
| 7 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material   | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
|  | 9 <input type="checkbox"/> Other  |

  
Don Wong  
Supervisory Patent Examiner  
Technology Center 2800

### **Reasons for allowance**

Claims 1-137 are allowed.

The following is an examiner's statement of reasons for allowance:

The prior art neither discloses nor suggests an electron-emitting apparatus comprising an acceleration electrode mounted at a position facing the electron source substrate, the acceleration electrode being applied with an acceleration potential for accelerating electrons emitted from the electron-emitting devices; a potential supply path for supplying the acceleration potential to the acceleration electrode, the potential supply path being introduced via an intermediate area on the side of the electron source substrate further comprising:

a first wire formed around the intermediate area; a resistor film formed between the first wire and the intermediate area, the resistor film electrically connected with the potential supply path and the first wire such as required by claim 1;

a first wire provided separately from the driving wires and formed on a surface between the intermediate area and the driving wires; and resistor film formed on a surface between the first wire and the intermediate area, the resistor film electrically connected with the potential supply path and the first wire such as required by claim 4;

a first wire provided separately from the driving wires and formed on a surface between the intermediate area and the driving wires; and a periodical projection/recess structure formed on a surface between the first wire and the intermediate area such as required by claim 39;

a first wire provided separately from the driving wires and formed on a surface between a passing area and driving wires; a sealing structure integrated with the potential supply path and hermetically mounted in a hole formed through the electron source substrate; and a projection/recess structure formed on a surface between the sealing structure and the first wire such as required by claim 40;

a first wire provided separately from the driving wires and formed on a surface between the intermediate area and the driving wires; and a second wire provided separately from the acceleration electrode around the acceleration electrode on the acceleration electrode substrate, wherein a space surrounded by the electron source substrate, the acceleration electrode substrate and a peripheral frame is maintained as a vacuum atmosphere, a lead portion of the first wire is extended outside of the vacuum atmosphere, a lead portion of the second wires is extended outside of the vacuum atmosphere, and a conductive contact member is in contact with the lead portions of the first and second wires such as required by claim 111.

a potential supply path for supplying the acceleration potential to the acceleration electrode, at least a portion of the potential supply path passing through the electron source substrate, a first wire provided separately from the driving wires and formed on a surface between the portion of the potential supply path and the driving wires, and a resistor film formed on a surface between the first wire and the portion of the potential supply path, and the resistor film being electrically connected with the potential supply path and the first wire such as required by claim 130;

a potential supply path for supplying the acceleration potential to the acceleration electrode, at least a portion of the potential supply path passing through the electron source substrate, a first wire provided separately from the driving wires and formed on a surface between the portion of the potential supply path and the driving wires, and a periodical projection/recess structure formed on a surface between the first wire and the portion of the potential supply path such as required by claim 131;

a potential supply path for supplying the acceleration potential to the acceleration electrode, at least a portion of the potential supply path passing through the electron source substrate, a first wire provided separately from the driving wires and formed on a surface between the portion of the potential supply path and the driving wires, a sealing structure integrated with the potential supply path and hermetically mounted in a hole formed through the electron source substrate, and a periodical projection/recess structure formed on a surface between the first wire and the portion of the potential supply path such as required by claim 132;

a potential supply path for supplying the acceleration potential to the acceleration electrode, at least a portion of the potential supply path passing through the electron source substrate, a first wire provided separately from the driving wires and formed on a surface between the portion of the potential supply path and the driving wires, a second wire provided separately from the acceleration electrode around the acceleration electrode on the acceleration electrode substrate, wherein a space surrounded by the electron source substrate, the acceleration electrode substrate and a peripheral frame is maintained as having a vacuum atmosphere, a lead portion of the first wire is extended



Art Unit: 2821

outside of the vacuum atmosphere, and a conductive contact member is in contact with the lead portions of the first and second wires such as required by claim 133;

driving wires connected to the electron-emitting devices, an electron source substrate on which the electron-emitting device and the driving wires and arranged, wherein on the substrate is provided a portion to which an acceleration potential for accelerating electrons emitted from the electron-emitting devices is supplied, a first wire provided separately from the driving wires and formed on a surface between the portion and the driving wires, and a resistor film formed a surface such as required by claim 134;

driving wires connected to the electron-emitting devices, an electron source substrate on which the electron-emitting device and the driving wires and arranged, wherein on the substrate is provided a portion to which an acceleration potential for accelerating electrons emitted from the electron-emitting devices is supplied, an electro-conductive film provided separately from the driving wires and formed on a surface between the portion and the driving wires, and a resistor film formed on a surface between the first wire and the portion such as required by claim 135;

driving wires connected to the electron-emitting devices, an electron source substrate on which the electron-emitting device and the driving wires and arranged, wherein on the substrate is provided a portion to which an acceleration potential for accelerating electrons emitted from the electron-emitting devices is supplied, a first wire provided separately from the driving wires and formed on a surface between the portion

and the driving wires, and a periodical projection/recess structure formed on a surface between the first wire and the portion such as required by claim 136;

driving wires connected to the electron-emitting devices, an electron source substrate on which the electron-emitting device and the driving wires are arranged, wherein on the substrate is provided a portion to which an acceleration potential for accelerating electrons emitted from the electron-emitting devices is supplied, an electroconductive film provided separately from the driving wires and formed on a surface between the portion and the driving wires, and a periodical projection/recess structure formed on a surface between the first wire and the portion such as required by claim 137.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Todokoro (6,342,875) discloses an image-forming apparatus comprising an acceleration electrode, potential supply, electron emitting devices, interlocking layer, resistor. Sanou et al. (6,278,233) discloses an image-forming apparatus with spacer comprising a plurality of recess portion for inserting insulating spacers, an acceleration electrode, electron emitting devices.

Art Unit: 2821

### Correspondence

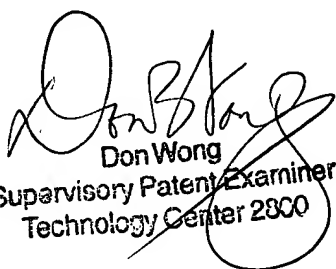
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Wilson Lee whose telephone number is (703) 306-3426.

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center receptionist whose telephone number is (703) 308-0956.

Papers related to Technology Center 2800 applications may be submitted to Technology Center 2800 by facsimile transmission. Any transmission not to be considered an official response must be clearly marked "DRAFT". The Technology Center Fax number is (703) 308-7722 or (703) 308-7724.

WL

4/7/03

  
Don Wong  
Supervisory Patent Examiner  
Technology Center 2800